



[Billing Code 4710-25]

DEPARTMENT OF STATE

22 CFR Part 121

RIN 1400-AD25

[Public Notice 8388]

Amendment to the International Traffic in Arms Regulations: Revision of U.S. Munitions List Category XI.

AGENCY: Department of State.

ACTION: Proposed rule.

SUMMARY: As part of the President's Export Control Reform effort, the Department of State proposes to amend the International Traffic in Arms Regulations (ITAR) to revise Category XI (Military Electronics) of the U.S. Munitions List (USML) to describe more precisely the articles warranting control on the USML. The proposed revision of USML Category XI was first published as a proposed rule on November 28, 2012, for public comment. The Administration has decided to publish this regulation again in proposed form to allow for public feedback on changes made to the rule and for the Department of State to request further input from the public on specific matters of concern. The revisions contained in this rule are part of the Department of State's retrospective plan under E.O. 13563.

DATES: The Department of State will accept comments on this proposed rule until [insert date 45 days from date of publication in the *Federal Register*].

ADDRESSES:

Interested parties may submit comments within 45 days of the date of publication by one of the following methods:

- E-mail: *DDTCResponseTeam@state.gov* with the subject line, “ITAR Amendment – Category XI.”
- Internet: At *www.regulations.gov*, search for this notice by using this rule’s RIN (1400-AD25).

Comments received after that date will be considered if feasible, but consideration cannot be assured. Those submitting comments should not include any personally identifying information they do not desire to be made public or information for which a claim of confidentiality is asserted because those comments and/or transmittal e-mails will be made available for public inspection and copying after the close of the comment period via the Directorate of Defense Trade Controls website at *www.pmdtdc.state.gov*. Parties who wish to comment anonymously may do so by submitting their comments via *www.regulations.gov*, leaving the fields that would identify the commenter blank and including no identifying information in the comment itself. Comments submitted via *www.regulations.gov* are immediately available for public inspection.

FOR FURTHER INFORMATION CONTACT: Ms. Sarah J. Heidema, Acting Director, Office of Defense Trade Controls Policy, Department of State, telephone (202) 663-2809; e-mail *DDTCResponseTeam@state.gov*. ATTN: Regulatory Change, USML Category XI. The Department of State’s full retrospective plan can be accessed at <http://www.state.gov/documents/organization/181028.pdf>.

SUPPLEMENTARY INFORMATION: The Directorate of Defense Trade Controls (DDTC), U.S. Department of State, administers the International Traffic in Arms Regulations (ITAR) (22 CFR parts 120-130). The items subject to the jurisdiction of the ITAR, *i.e.*, “defense articles” and

“defense services,” are identified on the ITAR’s U.S. Munitions List (USML) (22 CFR 121.1). With few exceptions, items not subject to the export control jurisdiction of the ITAR are subject to the jurisdiction of the Export Administration Regulations (“EAR,” 15 CFR parts 730-774, which includes the Commerce Control List (CCL) in Supplement No. 1 to part 774), administered by the Bureau of Industry and Security (BIS), U.S. Department of Commerce. Both the ITAR and the EAR impose license requirements on exports and reexports. Items not subject to the ITAR or to the exclusive licensing jurisdiction of any other set of regulations are subject to the EAR.

All references to the USML in this rule are to the list of defense articles controlled for the purpose of export or temporary import pursuant to the ITAR, and not to the defense articles on the USML that are controlled by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) for the purpose of permanent import under its regulations. *See* 27 CFR part 447. Pursuant to section 38(a)(1) of the Arms Export Control Act (AECA), all defense articles controlled for export or import are part of the USML under the AECA. For the sake of clarity, the list of defense articles controlled by ATF for the purpose of permanent import is the U.S. Munitions Import List (USMIL). The transfer of defense articles from the ITAR’s USML to the EAR’s CCL for the purpose of export control does not affect the list of defense articles controlled on the USMIL under the AECA for the purpose of permanent import.

Export Control Reform Update

Pursuant to the President’s Export Control Reform (ECR) initiative, the Department has published proposed revisions to thirteen USML

categories and has revised four USML categories to create a more positive control list and eliminate, where possible, “catch all” controls. The Department, along with the Departments of Commerce and Defense, reviewed the public comments the Department received on the proposed rules and has, where appropriate, revised the rules. The Department continues to review the remaining USML categories and will publish them as proposed rules in the coming months.

For discussion of public comments relevant to the two USML categories that have been published as final rules, please *see* “Amendment to the International Traffic in Arms Regulations: Initial Implementation of Export Control Reform,” published April 16, 2013 (78 FR 22740). The aforementioned notice also contained policies and procedures regarding the licensing of items moving from the export jurisdiction of the Department of State to the Department of Commerce, a definition for specially designed, and responses to public comments and changes to other sections of the ITAR that affect the categories discussed in this rule.

Pursuant to ECR, the Department of Commerce has been publishing revisions to the EAR, including various revisions to the CCL. Revision of the USML and CCL are coordinated so there is uninterrupted regulatory coverage for items moving from the jurisdiction of the Department of State to that of the Department of Commerce. For the Department of Commerce’s companion to this rule, please *see*, “Revisions to the Export Administration Regulations (EAR): Control of Military Electronic Equipment and Related Items the President Determines No Longer Warrant Control Under the United States Munitions List (USML),” elsewhere in this edition of the *Federal Register*.

Proposed Changes in this Rule

The Department proposes the following changes to the ITAR with this rule: (i) revision of USML Category XI (Military Electronics); and (ii) inclusion in USML Category XI of the new licensing procedure for the export of items subject to the EAR that are to be exported with defense articles enumerated in this category.

Revision of USML Category XI

The revision of USML Category XI was first published as a proposed rule (RIN 1400-AD25) on November 28, 2012, for public comment (*see* 77 FR 70958). The comment period ended January 28, 2013. Thirty-six parties filed comments recommending changes within the established comment period, which were reviewed and considered by the Department and other agencies. Pursuant to this review, which included assessment of the public comments received for the Department of Commerce's companion rule published on the same day (*see* 77 FR 70945), the Administration has decided to publish these regulations again in proposed form, to allow for public feedback on additional proposed changes to the rules and for the Departments of State and Commerce to request further input from the public on specific matters of concern. In addition, because of the frequency the term "specially designed" is used in the regulation, and because at the time of the public comment period there was not a final version of the term available for application, certain commenting parties expressed concern regarding the ability to fully assess the changes to this category. With the publication of the specially designed definition (*see* 78 FR 22740), these concerned parties may now apply the definition in their analysis of the proposed revision to the military electronics controls.

The Department received proposals for alternative phrasing and formatting of the regulatory text in USML Category XI. When the recommended changes added to the clarity of the regulation, did not alter the intended scope of the control, and were congruent with ECR objectives, the Department accepted them. In addition, the Department's assessment of many of the public comments has resulted in modifications throughout the regulation for more accurate description of the articles intended to be controlled.

One commenting party recommended that USML Category XI should explicitly exclude communications systems and equipment that have been configured for operational compatibility within military systems but that are comprised of commercial equipment and perform essentially civilian functions. Otherwise, the regulation would put U.S. companies at a disadvantage with foreign companies that are able to export such products without restriction. Similarly, other commenting parties expressed concerns that the revised regulation – in what was enumerated, as well as the parameters provided – would capture commercial articles. All such concerns were considered, and in certain cases, the regulation was revised. In light of the revised regulation, the Department requests that those who still believe it captures commercial articles to provide specific examples of such articles that would be covered by model or nomenclature, rather than the general comment that the regulation would capture commercial articles.

One commenting party was concerned that companies seeking to export systems comprised of both ITAR-controlled equipment and the new CCL 600 series items would need to obtain export authorizations from both the Departments of State and Commerce. The Department notes that “dual

licensing” is not a matter arising from export control reform, as it has always been the case that systems may contain items with different export control jurisdictions. A feature of ECR, though, does address this issue. As described in “Amendment to the International Traffic in Arms Regulations: Initial Implementation of Export Control Reform” (78 FR 22740), USML categories will have a new (x) paragraph, the purpose of which is to allow for ITAR licensing for commodities, software, and technical data subject to the EAR, provided those commodities, software, and technical data are to be used in or with defense articles controlled on the USML that are identified on the same license application and are described in the purchase documentation submitted with the license application.

Three commenting parties recommended including separate paragraphs within USML Category XI for the control of software for the development, operation, test, and repair of articles enumerated in the category. The Department did not accept this recommendation, as paragraph (d) controls related technical data, and technical data includes software (*see* ITAR §120.10).

One commenting party expressed concern that the Department relies heavily on use of the word “military” in the title of the category to describe the articles to be controlled therein, rather than adequately provide definitions, technical characteristics, or performance parameters to clearly define what makes the article “military.” The Department has, pursuant to a central tenet of the USML revision, endeavored to make USML Category XI into a “positive” listing of controlled articles. In instances where the reader does not agree, the Department welcomes specific recommendations for clarifying the controls.

One commenting party expressed concern that the proposed transfer of articles from the ITAR to the EAR may lead to jurisdictional uncertainty of the servicing of these articles. Generally, a defense service entails the furnishing of assistance regarding a defense article. Items that have traversed the USML-CCL divide are no longer “defense articles,” but are part of the “600 series” on the CCL. Servicing these items will not require an authorization from the Department. As part of ECR, the Department has published a proposed revision of the defense services definition in April 2011 (*see* 76 FR 20590), and again in May 2013 (*see* 78 FR 31444).

One commenting party recommended that articles not be covered by USML Category XI if the specified control parameters are achieved by international providers, for there will not be any critical military or intelligence advantage to the United States to provide ITAR control for these articles. While the determination whether an article provides a critical military or intelligence advantage and is exclusively available from the United States are important criteria for determining USML control, they are not the only ones. For example, although certain bombs are available from many countries, the Department believes these articles still warrant control on the USML.

One commenting party recommended the Department control “store management systems not capable of firing weapons” in USML Category XI(a). The Department requests that the commenting party clarify the article recommended for enumeration in USML Category XI, and provide the rationale for its control.

The Department did not accept the recommendation of one commenting party to revise paragraph (a)(1)(i)(D) to cover faster than real-

time processing, as it was not the intention to control post-processing systems.

Several commenting parties recommended changes to the criteria listed in paragraphs (a)(1)(i)(A) through (D), on the basis that commercial articles would otherwise be covered. The Department notes that the criteria in (A) through (D) are modified by the criteria of paragraph (a)(1)(i). However, the Department has made clarifying edits to this paragraph.

The Department accepted the recommendation of two commenting parties to add the term “systems” to the header introductions of paragraphs that enumerated systems for control. The Department agrees that doing so would better describe the articles controlled in those paragraphs.

The Department received recommendations from two commenting parties to define the term “target,” as it is used frequently in paragraph (a)(3) of the regulation. The Department believes a definition for this term is unnecessary, as the focus of the controls is the capabilities of the described articles rather than the character of targets against which the capabilities are applied.

In response to one commenting party’s recommendation, the Department clarifies that the meaning of the word “type” in the paragraph controlling radar employing non-cooperative target recognition is that provided in 14 CFR §1.1.

One commenting party recommended equipment not designed to meet TEMPEST standards, but subsequently tested and certified to meet the standard, not be controlled on the USML. The Department does not believe that an entity can design, rate, certify, or otherwise specify or describe

equipment to be in compliance with U.S. Government TEMPEST requirements without the help of the designer or manufacturer.

In response to recommendations and concerns of commenting parties, the Department has revised paragraph (a)(7) so that it does not apply to equipment or systems in production, to remove the word “devices,” to allow for other funding authorizations besides “contract,” and to provide a future effective date. The Department notes that the paragraph is meant to control articles not yet in existence, but provides limitations to the scope of the control. While it appreciates that such a control is not “positive” in aspect, the Department believes it is good regulatory practice to control as a defense article the fruits of a Department of Defense-private industry arrangement the stated purpose of which is to create a defense article.

In response to recommendations and concerns of commenting parties, the Department has revised paragraph (b) to remove “security purposes” as a reason for control, remove as an example systems or equipment that use burst techniques because these articles are covered in paragraph (a)(5)(v), and more clearly identify the enumerated articles as examples of articles controlled therein.

Two commenting parties requested clarification of how the articles controlled in paragraph (c) relate to articles enumerated in paragraph (a). The intent of paragraph (c) is to control the enumerated parts, components, accessories, attachments, and associated equipment regardless of whether they relate to articles enumerated in paragraph (a) or any other paragraph in USML Category XI, or to items on the CCL.

One commenting party recommended the inclusion of the phrase, “except for such items as are in normal commercial use,” in paragraph (c).

The Department's intent is to not list any articles in that paragraph that have commercial application, and requests specific identification of such articles that would be captured, but does not believe use of the phrase would be helpful.

In response to recommendations and concerns of commenting parties, the Department has revised the controls for printed circuit boards and patterned multichip modules, providing each with a separate subparagraph, and notes that jurisdiction of a printed circuit board or patterned multichip module should follow the jurisdiction of the article for which it is designed, as opposed to the jurisdiction of the overall system into which it is incorporated.

As it has proposed for other USML categories, and for the first proposed revision of USML Category XI, the Department is to add a new "(x) paragraph" to this category, allowing ITAR licensing for commodities, software, and technical data subject to the EAR provided those commodities, software, and technical data are to be used in or with defense articles controlled in USML Category XI *and* are described in the purchase documentation submitted with the application.

Additional Changes

A proposed definition for the term "equipment" was included in the first USML Category XI proposed rule. That definition will be included in a future final rule.

REGULATORY ANALYSIS AND NOTICES

Administrative Procedure Act

The Department of State is of the opinion that controlling the import and export of defense articles and services is a foreign affairs function of the

United States Government and that rules implementing this function are exempt from sections 553 (rulemaking) and 554 (adjudications) of the Administrative Procedure Act (APA). Although the Department is of the opinion that this rule is exempt from the rulemaking provisions of the APA, the Department is publishing this rule with a 45-day provision for public comment and without prejudice to its determination that controlling the import and export of defense services is a foreign affairs function. As noted above, and also without prejudice to the Department position that this rulemaking is not subject to the APA, the Department previously published a related Advance Notice of Proposed Rulemaking (RIN 1400-AD25) and accepted comments for 60 days.

Regulatory Flexibility Act

Since the Department is of the opinion that this proposed rule is exempt from the provisions of 5 U.S.C. 553, there is no requirement for an analysis under the Regulatory Flexibility Act.

Unfunded Mandates Reform Act of 1995

This proposed rulemaking does not involve a mandate that will result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any year and it will not significantly or uniquely affect small governments. Therefore, no actions were deemed necessary under the provisions of the Unfunded Mandates Reform Act of 1995.

Small Business Regulatory Enforcement Fairness Act of 1996

For purposes of the Small Business Regulatory Enforcement Fairness Act of 1996 (the “Act”), a “major” rule is a rule that the Administrator of the OMB Office of Information and Regulatory Affairs finds has resulted or is

likely to result in 1) an annual effect on the economy of \$100,000,000 or more; 2) a major increase in costs or prices for consumers, individual industries, federal, state, or local government agencies, or geographic regions; or 3) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic and foreign markets.

The Department does not believe this rulemaking will have an annual effect on the economy of \$100,000,000 or more. Articles that are being removed from coverage in the U.S. Munitions List categories contained in this rule will still require licensing for export, but from the Department of Commerce. While the licensing regime of the Department of Commerce is more flexible than that of the Department of State, it is not expected that the change in jurisdiction of these articles will result in an export difference of \$100,000,000 or more.

The Department also does not believe that this rulemaking will result in a major increase in costs or prices for consumers, individual industries, federal, state, or local government agencies, or geographic regions, or have significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic and foreign markets.

Executive Orders 12372 and 13132

This proposed rulemaking will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order

13132, it is determined that this proposed rulemaking does not have sufficient federalism implications to require consultations or warrant the preparation of a federalism summary impact statement. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this proposed rulemaking.

Executive Orders 12866 and 13563

Executive Orders 12866 and 13563 direct agencies to assess costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributed impacts, and equity). These executive orders stress the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. These rules have been designated “significant regulatory actions,” although not economically significant, under section 3(f) of Executive Order 12866. Accordingly, this proposed rule has been reviewed by the Office of Management and Budget (OMB).

Executive Order 12988

The Department of State has reviewed this proposed rulemaking in light of sections 3(a) and 3(b)(2) of Executive Order 12988 to eliminate ambiguity, minimize litigation, establish clear legal standards, and reduce burden.

Executive Order 13175

The Department of State has determined that this proposed rulemaking will not have tribal implications, will not impose substantial direct compliance costs on Indian tribal governments, and will not preempt

tribal law. Accordingly, the provisions of Executive Order 13175 do not apply to this proposed rulemaking.

Paperwork Reduction Act

Following is a listing of approved collections that will be affected by revision, pursuant to the President's Export Control Reform (ECR) initiative, of the U.S. Munitions List (USML) and the Commerce Control List. The list of collections and the description of the manner in which they will be affected pertains to revision of the USML in its entirety, not only to the category published in this rule:

- 1) Statement of Registration, DS-2032, OMB No. 1405-0002. The Department estimates that between 3,000 and 5,000 of the currently-registered persons will not need to maintain registration following full revision of the USML. This would result in a burden reduction of between 6,000 and 10,000 hours annually, based on a revised time burden of two hours to complete a Statement of Registration.
- 2) Application/License for Permanent Export of Unclassified Defense Articles and Related Unclassified Technical Data, DSP-5, OMB No. 1405-0003. The Department estimates that there will be 35,000 fewer DSP-5 submissions annually following full revision of the USML. This would result in a burden reduction of 35,000 hours annually. In addition, the DSP-5 will allow respondents to select USML Category XIX, a newly-established category, as a description of articles to be exported.
- 3) Application/License for Temporary Import of Unclassified Defense Articles, DSP-61, OMB No. 1405-0013. The Department estimates that there will be 200 fewer DSP-61 submissions annually following full revision of the USML. This would result in a burden reduction of 100 hours

annually. In addition, the DSP-61 will allow respondents to select USML Category XIX, a newly-established category, as a description of articles to be temporarily imported.

4) Application/License for Temporary Export of Unclassified Defense Articles, DSP-73, OMB No. 1405-0023. The Department estimates that there will be 800 fewer DSP-73 submissions annually following full revision of the USML. This would result in a burden reduction of 800 hours annually. In addition, the DSP-73 will allow respondents to select USML Category XIX, a newly-established category, as a description of articles to be temporarily exported.

5) Application for Amendment to License for Export or Import of Classified or Unclassified Defense Articles and Related Technical Data, DSP-6, -62, -74, -119, OMB No. 1405-0092. The Department estimates that there will be 2,000 fewer amendment submissions annually following full revision of the USML. This would result in a burden reduction of 1,000 hours annually. In addition, the amendment forms will allow respondents to select USML Category XIX, a newly-established category, as a description of the articles that are the subject of the amendment request.

6) Request for Approval of Manufacturing License Agreements, Technical Assistance Agreements, and Other Agreements, DSP-5, OMB No. 1405-0093. The Department estimates that there will be 1,000 fewer agreement submissions annually following full revision of the USML. This would result in a burden reduction of 2,000 hours annually. In addition, the DSP-5, the form used for the purposes of electronically submitting agreements, will allow respondents to select USML Category XIX, a newly-established category, as a description of articles to be exported.

7) Maintenance of Records by Registrants, OMB No. 1405-0111. The requirement to actively maintain records pursuant to provisions of the International Traffic in Arms Regulations (ITAR) will decline commensurate with the drop in the number of persons who will be required to register with the Department pursuant to the ITAR. As stated above, the Department estimates that between 3,000 and 5,000 of the currently-registered persons will not need to maintain registration following full revision of the USML. This would result in a burden reduction of between 60,000 and 100,000 hours annually. However, the ITAR does provide for the maintenance of records for a period of five years. Therefore, persons newly relieved of the requirement to register with the Department may still be required to maintain records.

8) Export Declaration of Defense Technical Data or Services, DS-4071, OMB No. 1405-0157. The Department estimates that there will be 2,000 fewer declaration submissions annually following full revision of the USML. This would result in a burden reduction of 1,000 hours annually.

List of Subjects

22 CFR 121

Arms and munitions, Classified information, Exports.

Accordingly, for the reasons set forth above, Title 22, Chapter I, Subchapter M, part 121, is proposed to be amended as follows:

PART 121 – THE UNITED STATES MUNITIONS LIST

1. The authority citation for part 121 continues to read as follows:

Authority: Secs. 2, 38, and 71, Pub. L. 90–629, 90 Stat. 744 (22 U.S.C. 2752, 2778, 2797); 22 U.S.C. 2651a; Pub. L. 105–261, 112 Stat. 1920; Section 1261, Pub. L. 112-239; E.O. 13637, 78 FR 16129.

2. Section 121.1 is amended by revising U.S. Munitions List Category XI to read as follows:

§121.1 General. The United States Munitions List.

* * * * *

Category XI — Military Electronics

(a) Electronic equipment and systems not included in Category XII of the U.S. Munitions List, as follows:

*(1) Underwater hardware, equipment, or systems, as follows:

(i) Active or passive acoustic array sensing systems or acoustic array equipment capable of real-time processing that survey or detect, and also track, localize (*i.e.*, determine range and bearing), classify, or identify surface vessels, submarines, other undersea vehicles, torpedoes, or mines, having any of the following:

(A) Multi-static capability;

(B) Operating frequency less than 20 kHz; or

(C) Operating bandwidth greater than 10 kHz;

(ii) Underwater single acoustic sensor system that distinguishes tonals and locates the origin of the sound;

(iii) Non-acoustic systems that survey or detect, and also track, localize, classify, or identify surface vessels, submarines, other undersea vehicles, torpedoes, or mines;

Note to paragraph (a)(1)(iii): Equipment controlled in ECCN 5A001.b.1 is not included.

(iv) Acoustic modems, networks, and communications equipment with real-time adaptive compensation or employing Low Probability of Intercept (LPI);

Note to paragraph (a)(1)(iv): Adaptive compensation is the capability of an underwater modem to assess the water conditions to select the best algorithm to receive and transmit data.

(v) Low Frequency/Very Low Frequency (LF/VLF) electronic modems, routers, interfaces, and communications equipment specially designed for submarine communications; or

(vi) Autonomous systems and equipment that enable cooperative sensing and engagement by fixed (bottom mounted/seabed) or mobile Autonomous Underwater Vehicles (AUVs);

*(2) Underwater acoustic countermeasures or counter-countermeasures systems or equipment;

*(3) Radar systems and equipment, as follows:

(i) Airborne radar that maintains positional state of an object of interest in a received radar signal through time;

(ii) Synthetic Aperture Radar (SAR) incorporating image resolution less than (better than) 0.3 m, or incorporating Coherent Change Detection (CCD) with geo-registration accuracy less than (better than) 0.3 m, not including concealed object detection equipment operating in the frequency range from 30 GHz to 3,000 GHz and having a spatial resolution of 0.5 milliradians up to and including 1 milliradians at a standoff distance of 100 m;

(iii) Inverse Synthetic Aperture Radar (ISAR);

(iv) Radar that geodetically-locates (*i.e.*, geodetic latitude, geodetic longitude, and geodetic height) with a target location error 50 (TLE50) less than or equal to 10 m at ranges greater than 1 km;

(v) Any ocean surface surveillance radar with either a product of transmit peak power times antenna gain divided by minimum detectable signal of

- >165 dB for a receiver bandwidth greater than 10 MHz or >195dB for a receiver bandwidth less than 10 MHz, or a capability to distinguish a target of <10 dBsm from sea clutter with a false alarm rate of 10^{-6} or better in sea state 3 or higher, or both;
- (vi) Sea surveillance/navigation radar with free space detection of 1 square meter radar cross section (RCS) target at 20 nautical miles (nmi) or greater range;
 - (vii) Air surveillance radar with free space detection of 1 square meter RCS target at 85 nmi or greater range, scaled to RCS values as RCS to the 1/4 power;
 - (viii) Air surveillance radar with free space detection of 1 square meter RCS target at an altitude of 65,000 feet and an elevation angle greater than 20 degrees (*i.e.*, counter-battery);
 - (ix) Air surveillance radar with multiple elevation beams, phase or amplitude monopulse estimation, or 3D height-finding;
 - (x) Air surveillance radar with a beam solid angle less than or equal to 16 degrees² that performs free space tracking of 1 square meter RCS target at a range greater or equal to 25 nmi with revisit rate greater or equal to 1/3 Hz;
 - (xi) Instrumentation radar for anechoic test facility or outdoor range that maintains positional state of an object of interest in a received radar signal through time or provides measurement of RCS of a static target less than or equal to –minus 10dBsm, or RCS of a dynamic target;
 - (xii) Radar incorporating pulsed operation with electronics steering of transmit beam in elevation and azimuth;

(xiii) Radar with mode(s) for ballistic tracking or ballistic extrapolation to source of launch or impact point of articles controlled in USML Categories III or IV;

(xiv) Active protection radar and missile warning radar with mode(s) implemented for detection of incoming munitions;

(xv) Over the horizon high frequency sky-wave (ionosphere) radar;

(xvi) Radar that detects a moving object through a physical obstruction at distance greater than 0.2 m from the obstruction;

(xvii) Radar having moving target indicator (MTI) or pulse-Doppler processing where any single Doppler filter provides a normalized clutter attenuation of greater than 50dB;

Note to paragraph (a)(3)(xvii): “Normalized clutter attenuation” is defined as the reduction in the power level of received distributed clutter when normalized to the thermal noise level.

(xviii) Radar having electronic protection (EP) or electronic counter-countermeasures (ECCM) other than manual gain control, automatic gain control, radio frequency selection, constant false alarm rate, and pulse repetition interval jitter;

(xix) Radar employing electronic attack (EA) mode(s) using the radar transmitter and antenna;

(xx) Radar employing electronic support (ES) mode(s) (*i.e.*, the ability to use a radar system for ES purposes in one or more of the following: as a high-gain receiver, as a wide-bandwidth receiver, as a multi-beam receiver, or as part of a multi-point system);

- (xxi) Radar employing non-cooperative target recognition (NCTR) (*i.e.*, the ability to recognize a specific platform type without cooperative action of the target platform);
- (xxii) Radar employing automatic target recognition (ATR) (*i.e.*, recognition of target using structural features (*e.g.*, tank versus car) of the target with system resolution better than (less than) 0.3 m;
- (xxiii) Radar that sends interceptor guidance commands or provides illumination keyed to an interceptor seeker;
- (xxiv) Radar employing waveform generation for LPI other than frequency modulated continuous wave (FMCW) with linear ramp modulation;
- (xxv) Radar that sends and receives communications;
- (xxvi) Radar that tracks or discriminates ballistic missile warhead from debris or countermeasures;
- (xxvii) Bi-static/multi-static radar that exploits greater than 125 kHz bandwidth and is lower than 2 GHz center frequency to passively detect or track using radio frequency (RF) transmissions (*e.g.*, commercial radio or television stations);
- (xxviii) Radar target generators, projectors, or simulators specially designed for radars controlled by this category; or
- (xxix) Radar and laser radar systems specially designed for defense articles in paragraph (a)(1) of USML Category IV or paragraphs (a)(5), (a)(6), or (a)(13) of USML Category VIII (MT if specially designed for rockets, space launch vehicles, missiles, drones, or unmanned aerial vehicles capable of delivering a payload of at least 500 kg to a range of at least 300 km);
- Note 1 to paragraph (a)(3)(xxix): Laser radar systems embody specialized transmission, scanning, receiving, and signal processing techniques for

utilization of lasers for echo ranging, direction finding, and discrimination of targets by location, radial speed, and body reflection characteristics.

Note 2 to paragraph (a)(3)(xxix): “Range” is the maximum distance that the specified rocket system is capable of traveling in the mode of stable flight as measured by the projection of its trajectory over the surface of the Earth.

The maximum capability based on the design characteristics of the system, when fully loaded with fuel or propellant, will be taken into consideration in determining range. The range for rocket systems will be determined independently of any external factors such as operational restrictions, limitations imposed by telemetry, data links, or other external constraints. For rocket systems, the range will be determined using the trajectory that maximizes range, assuming International Civil Aviation Organization (ICAO) standard atmosphere with zero wind. “Payload” is the total mass that can be carried or delivered by the specified rocket, SLV, or missile that is not used to maintain flight.

Note to paragraph (a)(3): This category does not control: 1) systems or equipment that require aircraft transponders in order to meet control parameters; 2) precision approach radar (PAR) equipment conforming to ICAO standards and employing electronically steerable linear (1-dimensional) arrays or mechanically positioned passive antennae; and 3) Radio Altimeter equipment conforming to FAA TSO C87.

*(4) Electronic Combat (*i.e.*, Electronic Warfare) systems and equipment, as follows:

(i) ES systems and equipment that search for, intercept and identify, or locate sources of intentional or unintentional electromagnetic energy

specially designed to provide immediate threat detection, recognition, targeting, planning, or conduct of future operations;

Note to paragraph (a)(4)(i): ES provides tactical situational awareness, automatic cueing, targeting, electronic order of battle planning, electronic intelligence (ELINT), communication intelligence (COMINT), or signals intelligence (SIGINT).

(ii) Systems and equipment that detect and automatically discriminate acoustic energy emanating from weapons fire (e.g., gunfire, artillery, rocket propelled grenades, or other projectiles), determining location or direction of weapons fire in less than two seconds from receipt of event signal, and able to operate on-the-move (e.g., operating on personnel, land vehicles, sea vessels, or aircraft while in motion); or

(iii) Systems and equipment specially designed to introduce extraneous or erroneous signals into radar, infrared based seekers, electro-optic based seekers, radio communication receivers, navigation receivers, or that otherwise hinder the reception, operation, or effectiveness of adversary electronics (e.g., active or passive electronic attack, electronic countermeasure, electronic counter-countermeasure equipment, jamming, and counter jamming equipment);

Note to paragraph (a)(4)(iii): This paragraph does not control mobile telecommunications jamming equipment determined to be subject to the EAR via a commodity jurisdiction determination (see §120.4 of this subchapter).

*(5) Command, control, and communications (C³); command, control, communications, and computers (C⁴); command, control, communications,

computers, intelligence, surveillance, and reconnaissance (C⁴ISR); and identification systems or equipment, that:

- (i) Are specially designed to integrate, incorporate, network, or employ defense articles controlled in this subchapter;
- (ii) Incorporate U.S. Government identification friend or foe (IFF) Modes 4 or 5;
- (iii) Implement active or passive ECCM used to counter acts of communication disruption (*e.g.*, radios that incorporate HAVE QUICK I/II, SINCGARS, SATURN);
- (iv) Specially designed, rated, certified, or otherwise specified or described to be in compliance with U.S. Government NSTISSAM TEMPEST 1-92 standards or CNSSAM TEMPEST 01-02, to implement techniques to suppress compromising emanations of information bearing signals; or
- (v) Transmit voice or data signals specially designed to elude electromagnetic detection;
- (6) [Reserved]
- (7) Developmental electronic equipment or systems funded by the Department of Defense via contract or other funding authorization;

Note 1 to paragraph (a)(7): This paragraph does not control developmental electronic systems or equipment (a) in production, (b) determined to be subject to the EAR via a commodity jurisdiction determination (*see* §120.4 of this subchapter), or (c) identified in the relevant Department of Defense contract or other funding authorization as being developed for both civil and military applications.

Note 2 to paragraph (a)(7): Note 1 does not apply to defense articles enumerated on the USML, whether in production or development.

Note 3 to paragraph (a)(7): This paragraph is applicable only to those contracts and funding authorizations that are dated one year or later following the publication of [insert name of final rule incorporating revision of USML Category XI].

(8) Unattended ground sensor (UGS) systems or equipment having all of the following:

- (i) Automatic target detection;
- (ii) Automatic target tracking, classification, recognition, or identification;
- (iii) Self-forming or self-healing networks; and
- (iv) Self-localization for geo-locating targets;

(9) Electronic sensor systems or equipment for non-acoustic anti-submarine warfare (ASW) or mine warfare (*e.g.*, magnetic anomaly detectors (MAD), electric-field, and electromagnetic induction);

(10) Electronic sensor systems or equipment for detection of concealed weapons, having a standoff detection range of greater than 45 m for personnel or detection of vehicle-carried weapons;

(11) Test sets specially designed for testing counter radio controlled improvised explosive device (C-RCIED) electronic warfare (CREW) systems; or

(12) Direction finding equipment for determining bearings to specific electromagnetic sources or terrain characteristics specially designed for defense articles in paragraph (a)(1) of USML Category IV or paragraphs (a)(5), (a)(6), or (a)(13) of USML Category VIII (MT if specially designed for rockets, SLVs, missiles, drones, or UAVs capable of delivering a payload of at least 500 kg to a range of at least 300 km. *See* note 2 to paragraph (a)(3)(xxix) of this category).

Note 1 to paragraph (a): The term “Low Probability of Intercept” used in this paragraph and elsewhere in this category is defined as a class of measures that disguise, delay, or prevent the interception of acoustic or electromagnetic signals. LPI techniques can involve permutations of power management, energy management, frequency variability, out-of-receiver-frequency band, low-side lobe antenna, complex waveforms, and complex scanning. LPI is also referred to as Low Probability of Intercept, Low Probability of Detection, and Low Probability of Identification.

Note 2 to paragraph (a): Paragraphs (a)(3)(xxix) and (a)(12) include terrain contour mapping equipment, scene mapping and correlation (both digital and analogue) equipment, Doppler navigation radar equipment, passive interferometer equipment, and imaging sensor equipment (both active and passive).

*(b) Electronic systems or equipment specially designed for intelligence purposes that collects, surveys, monitors, or exploits the electromagnetic spectrum (regardless of transmission medium), or for counteracting such activities.

Note to paragraph (b): Examples of articles within the scope of this paragraph include:

- (1) direction finding systems for non-cooperative objects that have an angle of arrival (AOA) accuracy better than (less than) two degrees root mean square (RMS) and “specially designed” for applications other than navigation;
- (2) systems and equipment specially designed for measurement and signature intelligence (MASINT); and
- (3) technical surveillance counter-measure (TSCM) or electronic surveillance equipment and counter electronic surveillance equipment

(including spectrum analyzers) for the RF/microwave spectrum having all of the following:

- (i) a sweep or scan speed exceeding 250 MHz per second;
 - (ii) a built-in signal analysis capability;
 - (iii) a volume of less than 1 cubic foot;
 - (iv) record time-domain or frequency-domain digital signals other than single trace spectral snapshots; and
 - (v) display time-vs-frequency domain (*e.g.*, waterfall or rising raster).
- (c) Parts, components, accessories, attachments, and associated equipment, as follows:

(1) Application Specific Integrated Circuits (ASICs) and Programmable Logic Devices (PLD) programmed for defense articles in this subchapter;

Note 1 to paragraph (c)(1): ASICs and PLDs programmed for 600 series items are controlled in ECCN 3A611.f.

Note 2 to paragraph (c)(1): Unprogrammed PLDs are not controlled by this paragraph.

(2) Printed Circuit Boards (PCBs) and populated circuit card assemblies for which the layout is specially designed for defense articles in this subchapter;

Note to paragraph (c)(2): PCBs and populated circuit card assemblies for which the layout is specially designed for 600 series items are controlled in ECCN 3A611.g.

(3) Multichip modules for which the pattern or layout is specially designed for defense articles in this subchapter;

Note to paragraph (c)(3): Multichip modules for which the pattern or layout is specially designed for 600 series items are controlled in ECCN 3A611.h.

- (4) Transmit/receive modules or transmit modules that have any two perpendicular sides, with either length d (in cm) equal to or less than 15 divided by the lowest operating frequency in GHz [$d \leq 15 \text{ cm} \cdot \text{GHz} / f_{\text{GHz}}$], that incorporate a Monolithic Microwave Integrated Circuit (MMIC) or discrete RF power transistor and a phase shifter or phasers;
- (5) High-energy storage capacitors with a repetition rate of 6 discharges or more per minute and full energy life greater than or equal to 10,000 discharges, at greater than 0.2 Amps per Joule peak current, that have any of the following:
- (i) Volumetric energy density greater than or equal to 1.5 J/cc; or
 - (ii) Mass energy density greater than or equal to 1.3 kJ/kg;
- (6) Radio frequency circulators of any dimension equal to or less than one quarter ($1/4$) wavelength of the highest operating frequency and isolation greater than 30dB;
- (7) Polarimeter that detects and measures polarization of radio frequency signals within a single pulse;
- (8) Digital radio frequency memory (DRFM) with RF instantaneous input bandwidth greater than 400 MHz, and 4 bit or higher resolution and specially designed parts and components therefor;
- (9) Vacuum electronic devices, as follows:
- (i) Multiple electron beam or sheet electron beam devices rated for operation at frequencies of 16 GHz or above, and with a saturated power output greater than 10,000 W (70 dBm) or a maximum average power output greater than 3,000 W (65 dBm); or
 - (ii) Cross-field amplifiers with a gain of 15 dB to 17 dB or a duty factor greater than 5%;

(10) Antenna, and specially designed parts and components therefor, that:

(i) Electronically steers both angular beams and nulls with four or more elements with faster than 50 milliseconds beam switching;

(ii) Form adaptive null attenuation greater than 35 dB with convergence time less than 1 second;

(iii) Detect signals across multiple RF bands with matched left hand and right hand spiral antenna elements for determination of signal polarization;

or

(iv) Determine signal angle of arrival less than two degrees (*e.g.*, interferometer antenna);

Note to paragraph (c)(10): This category does not control Traffic Collision Avoidance Systems (TCAS) equipment conforming to FAA TSO C-119c.

(11) Radomes or electromagnetic antenna windows that:

(i) Incorporate radio frequency selective surfaces;

(ii) Operate in multiple non-adjacent radar bands;

(iii) Incorporate a structure that is specially designed to provide ballistic protection from bullets, shrapnel, or blast;

(iv) Have a melting point greater than 1,300°C and maintain a dielectric constant less than 6 at temperatures greater than 500°C;

(v) Are manufactured from ceramic materials with a dielectric constant less than 6 at any frequency from 100 MHz to 100 GHz (MT if usable in rockets, SLVs, or missiles capable of achieving a range greater than or equal to 300 km; or if usable in drones or UAVs capable of delivering a payload of at least 500 kg to a range of at least 300 km. *See* note 2 to paragraph

(a)(3)(xxix) of this category);

- (vi) Maintain structural integrity at stagnation pressures greater than 6,000 pounds per square foot; or
- (vii) Withstand combined thermal shock greater than $4.184 \times 10^6 \text{ J/m}^2$ accompanied by a peak overpressure of greater than 50 kPa (MT if usable in rockets, SLVs, missiles, drones, or UAVs capable of delivering a payload of at least 500 kg to a range of at least 300 km and usable in protecting against nuclear effects (*e.g.*, Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects). *See* note 2 to paragraph (a)(3)(xxix) of this category);
- (12) Underwater sensors (acoustic vector sensors, hydrophones, or transducers) or projectors specially designed for systems controlled by paragraphs (a)(1) and (a)(2) of this category, having any of the following:
 - (i) a transmitting frequency below 10 kHz;
 - (ii) Sound pressure level exceeding 224 dB (reference 1 μPa at 1 m) for equipment with an operating frequency in the band from 10 kHz to 24 kHz inclusive;
 - (iii) Sound pressure level exceeding 235 dB (reference 1 μPa at 1 m) for equipment with an operating frequency in the band between 24 kHz and 30 kHz;
 - (iv) Forming beams of less than 1° on any axis and having an operating frequency of less than 100 kHz;
 - (v) Designed to operate with an unambiguous display range exceeding 5,120 m; or
 - (vi) Designed to withstand pressure during normal operation at depths exceeding 1,000 m and having transducers with any of the following:
 - (A) Dynamic compensation for pressure; or

(B) Incorporating other than lead zirconate titanate as the transduction element;

(13) Parts or components containing piezoelectric materials which are specially designed for underwater hardware, equipment, or systems controlled by paragraph (c)(11) of this category;

(14) Tuners having all of the following:

(i) An instantaneous bandwidth of 30 MHz or greater; and

(ii) A tuning speed of 300 microseconds or less to within 10 KHz of desired frequency;

(15) Electronic assemblies and components specially designed for rockets, SLVs, missiles, drones, or UAVs capable of achieving a range greater than or equal to 300 km and capable of operation at temperatures in excess of 125°C (MT) (*See note 2 to paragraph (a)(3)(xxix) of this category*);

(16) Specially designed hybrid (combined analogue/digital) computers for modeling, simulation, or design integration of systems enumerated in paragraphs (a)(1), (d)(1), (d)(2), (h)(1), (h)(2), (h)(4), (h)(8), and (h)(9) of USML Category IV or paragraphs (a)(5), (a)(6) or (a)(13) of USML Category VIII (MT if for rockets, SLVs, missiles, drones, or UAVs capable of delivering a payload of at least 500 kg to a range of at least 300 km or their subsystems. *See note 2 to paragraph (a)(3)(xxix) of this category*);

(17) Parts, components, or accessories specially designed for an information assurance/information security system or a radio controlled in this subchapter that modify its published properties (*e.g.*, frequency range, algorithms, waveforms, CODECs, or modulation/demodulation schemes); or

*(18) Any part, component, accessory, attachment, equipment, or system that (MT for those articles designated as such):

- (i) Is classified;
- (ii) Contains classified software directly related to defense articles in this subchapter or 600 series items subject to the EAR; or
- (iii) Is being developed using classified information (*see* §120.10(a)(2) of this subchapter).

"Classified" means classified pursuant to Executive Order 13526, or predecessor order, and a security classification guide developed pursuant thereto or equivalent, or to the corresponding classification rules of another government or international organization.

Note to paragraph (c)(18)(ii): Parts and components captured by paragraph (c)(17)(ii) are limited to those that store, process, or transmit classified software.

(d) Technical data (*see* §120.10 of this subchapter) and defense services (*see* §120.9 of this subchapter) directly related to the defense articles enumerated in paragraphs (a) through (c) of this category and classified technical data directly related to items controlled in CCL ECCNs 3A611, 3B611, 3C611, and 3D611 and defense services using the classified technical data. (*See* §125.4 of this subchapter for exemptions.) (MT for technical data and defense services related to articles designated as such.)

(e)-(w) [Reserved]

(x) Commodities, software, and technical data subject to the EAR (*see* §120.42 of this subchapter) used in or with defense articles controlled in this category.

Note to paragraph (x): Use of this paragraph is limited to license applications for defense articles controlled in this category where the

purchase documentation includes commodities, software, or technical data subject to the EAR (*see* §123.1(b) of this subchapter).

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